

CHESHIRE EAST COUNCIL

Cabinet Member for Environmental Services

Date of Meeting: 5th December 2011
Report of: Head of Highways and Transportation
Subject/Title: Pedestrian Crossing Policy
Portfolio Holder: Councillor Rod Menlove

1.0 Report Summary

- 1.1 That the Cabinet Member approves the proposed Pedestrian Crossing Policy.
- 1.2 The Borough Council currently does not have a policy on the assessment of locations for pedestrian crossings.
- 1.3 Requests for pedestrian crossings are frequently received from a variety sources.
- 1.4 This policy provides a process for handling requests and the assessment procedure for determining the most appropriate form of crossing.

2.0 Recommendation

- 2.1 That the Cabinet Member for Environmental Services approve the Pedestrian Crossing Policy set out in Appendix A to the report.

3.0 Reasons for Recommendations

- 3.1 Cheshire East requires a formal policy on the installation of pedestrian crossings throughout the Borough

4.0 Wards Affected

- 4.1 This report affects all wards equally.

5.0 Local Ward Members

- 5.1 This report affects all ward members equally.

6.0 Policy Implications including – Climate Change - Health

- 6.1 There are no human resources implications of the recommended option.

7.0 Financial Implications (Authorised by the Borough Treasurer)

7.1 The Strategic Director confirms that the costs of implementing this policy will be met from existing budgets.

8.0 Legal Implications (Authorised by the Borough Solicitor)

8.1 Part III of the Road Traffic Regulation Act 1984 provides powers to local traffic authorities to establish; alter and remove crossings for pedestrians, and such crossings must be indicated in the manner prescribed by Regulations made under Section 25 of the Act.

8.2 The relevant regulations governing the detailed requirements include The Zebra, Pelican and Puffin Pedestrian Crossings Regulations and General Directions 1997 and The Traffic Signs Regulations and General Directions 2002. Before any establishment, alternation or removal of a crossing takes place, the Chief Officer of Police must be consulted, a public notice given, and the Secretary of State must be informed in writing.

8.3 Further guidance on assessment factors and choice of sites is found in the Department for Transport's Local Transport Note 1/95: The Assessment and Design of Pedestrian Crossings. The policy has been drafted taking into account of this legislation and guidance.

9.0 Risk Management

9.1 The Authority currently does not have a formal policy for the assessment and determination as to the most appropriate form of crossing for pedestrians. This policy will formalise the processes to be followed when receiving requests to provide safer crossing facilities. The policy supports the Authority's position when determining the risks to members of the public in crossing the carriageway at individual locations.

10.0 Background and Options

10.1 Introduction

The Borough Council is reviewing all its highway policies. Many requests for safer crossing facilities for pedestrians are received annually and this policy gives guidance to officers, Council Members and members of the public regarding the processes that will be followed when considering such requests. It also explains the role of the Local Area Partnerships in the process.

This policy will form part of a suite of highway related safety documents that link in to the main overarching Speed Management Strategy that will come before this committee in the near future.

10.2 **Background**

The demand for pedestrian crossing facilities far exceeds the Borough's available funding. As such there is a need for a consistent approach to the assessment of the appropriate form of crossing, if any, for each location and a means of prioritising implementation with regard to the limited resources available.

Historically, pedestrian crossing assessments have been based on a numerical score that measures the degree of conflict between vehicles and pedestrians. PV^2 where P is the number of pedestrians crossing per hour over a 100m section and V is the number of vehicles per hour, was and still is a nationally recognised guidance as to the degree of conflict.

Current procedures follow the advice in Local Transport Note 1/95: The Assessment of Pedestrian Crossings. It is still based on a numerical score for assessed locations but incorporates factors to take account of site specific issues, such as community severance, the location of schools and the number of elderly pedestrians. The use of a numerical value gives a means of prioritising all locations for allocating funding. The current procedure has proved to be a robust tool in the decision making process and in defending decisions regarding the provision or none provision of facilities.

However, current procedures are not fully appropriate to Cheshire East's decision making process or its local working between Members and Local Area Partnerships (LAPs).

This proposed policy has taken the basis of the current assessment process but includes the role of local Members and LAPs in the decision making process.

The final recommendation as to the form of crossing will be based on local specific site information included in an Option Report.

11.0 **Access to Information**

The background papers relating to this report can be inspected by contacting the report writer:

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Pedestrian Crossings Policy

Introduction

Crossings are provided as amenities to give access and easier movement to pedestrians. Generally the provision of crossings should be targeted at the needs of those people who experience most difficulty and danger. It should not be assumed that the provision of a crossing alone will necessarily lead to a reduction in road accidents.

The purpose of a crossing is to provide pedestrians with a passage across a carriageway. Each type of crossing has advantages and disadvantages; the type chosen should be appropriate to the circumstances of the site and the demands and behaviour of road users.

Hierarchy

Traffic Management including Refuges

It may be possible to create more crossing opportunities by:

- the provision of a refuge or
- installing traffic calming measures or
- build outs or narrowing the carriageway (to reduce the crossing time).

Refuges allow both pedestrians and cyclists to cross the road in two halves, reducing the size of gap between vehicles that they may require. Although such facilities aid the pedestrian or cyclist crossing the road, they can cause potential problems for the cyclist travelling along the road because of the reduced width available for motorised traffic to pass. Refuges are most appropriate where the road is around 10 metres wide.

Build-outs or road narrowing to assist the pedestrian reduces the distance the pedestrian would have to cross on the carriageway. It also would allow motorised vehicles the opportunity to pass cycles on the off side because there would not be a central restriction. Narrowing of the carriageway can have the advantage of allowing the footway to be widened thus enhancing visibility past permanent obstructions, such as trees, post boxes, etc.

Vehicle speeds and the percentage of heavy vehicles may influence the local acceptability of either option.

Zebra

Zebra crossings should be considered where pedestrian flows are 1100 people per hour or less (averaged over the four highest hours) and where vehicle flows are 500 vehicles per hour or less (averaged over the four highest hours). Zebra crossings are usually used where pedestrian flows are relatively low and traffic

flows are no more than moderate. The likely effect of a Zebra crossing can be tested by checking the availability of gaps in the traffic. Gaps of around five seconds are needed for an able person to cross a 7 metre carriageway.

Vehicle delays are typically five seconds for a single able person crossing, but can be much more where irregular streams of people cross over extended periods.

Zebra crossings are also best avoided on busy town centre streets or outside railway stations since this is likely to result in a constant stream of pedestrians claiming priority. Higher flows of pedestrians will cause substantial delay to vehicles and a Zebra crossing is less likely to be a satisfactory choice.

Where gaps in traffic flows are few, and waiting times long because people feel it may be hazardous to establish precedence, a Zebra crossing is likely to be unsuitable.

Where traffic speeds are higher than 30 m.p.h., people will require longer gaps in the traffic flow or be exposed to the risk of more serious injury if precedence is not conceded for any reason. Zebra crossings should not be installed on roads with an 85 percentile speed of 35 m.p.h. or above.

Zebra crossings should not be considered where there are significant numbers of vulnerable road users such as: unaccompanied children, elderly and people with disabilities.

When considering the installation of a Zebra crossing and pedestrian flows are high during the morning peak and at the end of the school day (but relatively low at other times), because of significant numbers of school children, then the presence of a school crossing patrol should also be taken into account when making the choice between types of crossing. A School crossing patrol can assist to ensure there are reasonable gaps for both vehicles and pedestrians.

Signal Controlled Crossings (Pelican /Puffin / Toucan/ Pegasus)

PELICAN [Pedestrian Light Controlled Crossing]

These have red/amber/green signals facing drivers, and red man/green man signal heads on the opposite side of the road to the pedestrians waiting to cross. A pedestrian push button unit operates these. When the red man is lit pedestrians should not cross (although it is not against the law to do so). The Highway Code says that when the steady red signal to traffic is lit then drivers **MUST** stop. The green man will then light for pedestrians and they should, having checked that it is safe to do so, cross the road. When the green man begins to flash pedestrians should not start to cross although there is still enough time for those on the crossing to finish their journey safely. At all Pelican crossings (apart from 'staggered' crossings) there is a bleeping sound to indicate to the visibility impaired when the steady green man is lit.

PUFFIN [Pedestrian User Friendly Intelligent Crossing]

These differ from Pelican crossings as they do not have a flashing green man/flashing amber signal. The overall crossing time is established each time by on-crossing pedestrian detectors. The demand for the crossing is still triggered by the push button unit but kerbside pedestrian detectors are fitted to cancel demands that are no longer required (when a person crosses before the green man lights). At the latest Puffin crossings the red man/green man signals are above the push button unit on the pedestrians' side of the road. This layout encourages pedestrians waiting at the crossing to look at the approaching traffic at the same time as looking at the red man/green man signal.

TOUCAN [two can cross]

These are designed for both pedestrians and cyclists and are typically used adjacent to a cycle-path (Cyclists are not allowed to cross the road using Zebra, Pelican or Puffin crossings). There is a green cycle symbol alongside the green man. At the latest Toucan crossings the crossing time is established each time by on-crossing detectors in the same way as Puffins. The cost of a Toucan is similar to that of a Puffin.

PEGASUS

These are similar to Toucan crossings but have a red/green horse symbol and higher mounted push buttons to allow horse riders to cross. This type of crossing is only used where many crossing movements are made across a busy main road.

Signal Controlled Crossings are more suitable where:

- vehicle speeds are high, and other options are thought unsuitable;
- there is normally a greater than average proportion of elderly or disabled pedestrians or unaccompanied children;
- vehicle flows are very high and pedestrians have difficulty in asserting precedence;
- there is a specific need for a crossing for cyclists or equestrians;
- pedestrians could be confused by traffic management measures such as a contra-flow bus lane;
- there is a need to link with adjacent controlled junctions or crossings;
- pedestrian flows are high and delays to vehicular traffic would otherwise be excessive.

Caution should be exercised where pedestrian flows are generally light or light for long periods of the day. Drivers who become accustomed to not being stopped at the crossing may begin to ignore its existence, with dangerous consequences. The problems are accentuated as vehicle speeds increase.

Assessment

The decision as to whether to install a crossing and the choice of option will depend on the following factors. Examples

- number of accidents,
- delays,
- local representations,
- local interest groups,
- cost
- relative priority with other sites.

Initial request

Requests for pedestrian crossing facilities can come from a variety of sources. On receipt of a request an initial assessment of the collision history of the location will be carried out. Should it appear that the location does have a record of collisions resulting in injury to vulnerable road users then the location will be considered for inclusion in the Casualty Reduction programme. If the location does not meet this criteria, further consideration will only be given where supported by the local Ward Member through the Local Area Partnership Minor Highway Works process.

An initial site visit is to be carried out during the morning peak hour to determine whether the location is likely to meet the criteria for a pedestrian crossing. This initial assessment will identify any pedestrian desire line and the number of pedestrians crossing. Vehicle flows will be determined either from existing records or by a 15 minute on site count. From this information an estimated PV^2 value is obtained. This gives an indication of the degree of conflict and is determined by multiplying the number of vehicles per hour (V) squared by the number of pedestrians crossing per hour (P) over a 100m section. From this information a site assessment report will be produced as indicated below with a recommendation to either carry out a detailed assessment or not.

A location that indicates a PV^2 of less than 0.1×10^8 will not normally be considered for any further investigation. Those that indicate a higher PV^2 value will be a subject of a detailed assessment.

INITIAL SITE ASSESSMENT INFORMATION

| Characteristic | Data and comments at DATE |
|---------------------------|--|
| Location | Location GR Class and type of carriageway Width of carriageway Width of footways v/ verges |
| Highway facilities | Road lighting, bus stops etc. |
| Visibility | Can desirable visibility standards be met? Are further parking restrictions required. |
| Complexity | Road junctions, other pedestrian crossings, public buildings or facilities, schools. |
| Crossing traffic | Approximate number of people crossing in peak hours. Noticeable groups. Approximate crossing time and difficulty of crossing |
| Vehicles | Approximate number of vehicles per day and type noticeable types. Peak hour flows. 85 percentile speed and speed limit. |
| Road accidents | 5 year collision data, collisions involving vulnerable users |
| Estimated PV ² | Based on initial site visit |
| Recommendation | |

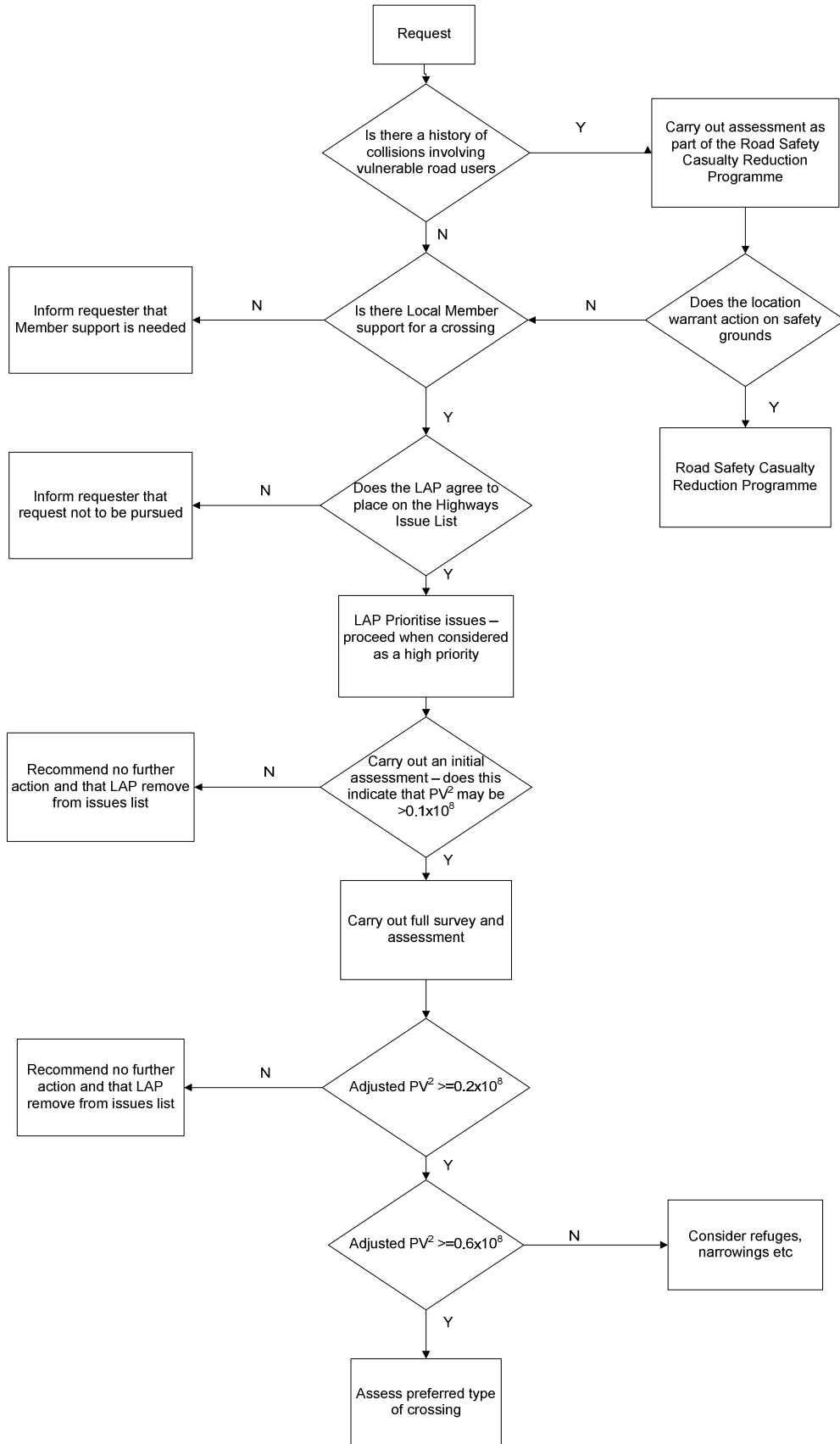
Detailed Assessment

Detailed assessments of locations where a pedestrian crossing should be considered will be carried out.

Final Option Determination

Following the detailed assessment, an Option Report and recommendation will be produced.

Pedestrian Crossing Assessment Process



DETAILED ASSESSMENT PROCEDURE

This uses a numerical measure to assess the degree of conflict between vehicles and pedestrians, with a reduced numerical measure for special circumstances. The degree of conflict is determined by multiplying the number of vehicles per hour (V) squared by the number of pedestrians crossing per hour (P) over a 100m section. The average of the four highest hours is taken to represent what is called PV². The principal of PV² is a well known and understood measurement nationally and is a tried and tested principal as a basis for pedestrian facilities provision.

When assessing a request for a crossing then, if the value of PV² is less than 0.2 x 10⁸, no formal crossing facilities are normally provided. If the value of PV² is above 0.2 x 10⁸ then there should be a more in-depth framework assessment carried out, in line with the advice in Local Transport Note 1/95. This criterion is equally applicable to pedestrian facilities as combined pedestrian and cycle facilities.

However to maintain a consistent approach this framework assessment is also to be based upon a PV² approach. This is achieved through adjusting the value of PV² to take account of the composition of the pedestrian flow, the width to be crossed, the speed limit and 85%ile speed of the road and the difficulty encountered crossing the road in terms of time spent waiting and crossing.

In adopting this approach the proposal not only gives an indication of the need for a crossing but also allows for the inclusion of costs to incorporate a ranking between different types of crossing and between two different sites if funding is not immediately available to undertake all requests for crossing facilities in a given year.

Where an existing location has a high pedestrian accident rate then, if pedestrian facilities are judged to be most effective remedy, these sites would not be subject to PV² criteria.

Other Locations

There are circumstances that an assessment following this process does not fully address the issues of concern such as:

- a) close to a proposed new developments ;
- b) along a proposed Safer Routes to School route; and
- c) along a proposed national cycle network routes.

At all the above situations there may be little existing pedestrian or cycle movements. However, as a result of the proposals significant volumes would result. Yet the application of the modified PV² calculation would not imply the provision of a pedestrian facility because the number of new pedestrians and/or cyclists generated by the above three circumstances would not be known.

Therefore, in these circumstances, due consideration should be given to the provision of pedestrian/cycle crossing facilities if the traffic flow for the four busiest hours is above **480** vehicles per hour (two way) or the number of heavy goods vehicles is 300 vehicles per hour (two way) or above. After carrying out a preliminary survey of the proposed site a decision should be reached on whether a crossing is justified or not based upon experience at previously installed sites, judgement and knowledge of local factors.

Detailed Assessment

In order to take account of the various different classifications of pedestrians a series of factors are applied to the value of PV^2 , which is still calculated as the average over the highest four hours, as follows:

EP Percentage of Elderly pedestrians (EP). If the percentage of elderly pedestrians is less than 10%, a factor of 1 should be used. If more than 10%, then use the following formula

$$\frac{(100+EP)}{110}$$

(Elderly defined in terms of visual appearance and is a judgement of the enumeration staff generally taken as over 60)

UC Percentage of unaccompanied children. If there are not more than 10% of unaccompanied children, use 1. If there are more than 10%, use the following formula:

$$\frac{(100+UC)}{110}$$

PW Percentage of pedestrians with prams/pushchairs, wheelchairs or blind (white sticks or guide dogs). If not more than 5% use 1. If more than 5% then use the following formula:

$$\frac{(100+PW)}{105}$$

PB Percentage of bicycles crossing. If not more than 15%, use 1. If more than 15%, use following formula:

$$\frac{(100+PB)}{115}$$

115

RW Road width. If not more than 7.3m, use 1. If more than 7.3m, use the following formula:

$$\frac{W}{115}$$

7.3

CT Time to cross (seconds) this reflects the difficulty in crossing in terms of the volume of traffic and complexity of the location (eg presence of junctions or other features). If it takes on average less than 26

seconds cross, use 1. If it takes between 26 and 40 seconds to cross, use 1.2; if it takes between 41 and 60 seconds to cross use 1.4; and if it takes over 60 seconds to cross, use 1.6 (the above crossing times include both waiting time and crossing time).

VS Vehicle speeds; if 85th percentile speed is less than 30 use a factor of 1

If between 30 and 35 use 1.1

If between 36 and 40 use 1.2

If between 41 and 45 use 1.3

If between 46 and 50 use 1.4

NB before considering the use of surface crossings on roads with 85th percentile speeds greater than 50 mph consider speed reduction measures.

CS If a proposal is located where a road divides a substantial community or is outside a school, clinic, community centre, home for the elderly or busy shopping centre adjust as follows:

Proposed location is on a road that causes community severance or outside a school or clinic, home for the elderly etc then apply 1.1.

If the proposed site is close to two of the above use a factor of 1.25.

If a proposed site is close to three or more of use a factor of 1.4.

Modified Formula for PV²

PV² Adjustment factor (EPxUCxPWxPBxRWxCTxVSxCS)

If adjusted PV² is greater than 0.6×10^8 consider either a zebra crossing or a signal controlled crossing

Below 0.6 consideration of other measures should be given such as narrowing carriageway to aid crossing, central refuges, traffic calming.

EXAMPLE OF PEDESTRIAN CROSSING OPTION REPORT

Location:

Site Assessment Information

| Characteristic | Data and comments at DATE |
|--------------------|--|
| Location | Class and type of carriageway Width of footways/verges |
| Highway facilities | Road lighting, bus stops etc. |
| Visibility | Can desirable visibility standards be met? Are further parking restrictions required. |
| Complexity | Road junctions, other pedestrian crossings, public buildings or facilities, schools. |
| Road accidents | 5 year collision data, collisions involving vulnerable users |

The location of highest pedestrians crossing was observed to be:

Recommended Location:

The assessment indicated the following in a 12 hour period:

| | | | | | |
|------------------------|---|--|--|--|---------|
| Location | Bradfield Road, Crewe - Mablins Lane to Cliffe Road (E369797/N357448) | | | Factors | |
| Survey Data | | | | Number of Elderly | 14 |
| Traffic Survey Date | 6/9/2007 | | | No. of Unaccompanied Children | 22 |
| Pedestrian Survey Date | 9/10/2007 | | | No. of Prams, Wheelchairs & Blind | 2 |
| | | | | No. of Bicycles | 118 |
| | | | | Road Width (m) | 6.9 |
| | | | | Time to Cross (secs) | 26 |
| | | | | 85th percentile (mph) | 35.6 |
| | | | | Special Factors | |
| | | | | Severed Community | yes |
| | | | | Outside School | no |
| | | | | Outside Clinic | no |
| | | | | Outside Community Centre | no |
| | | | | Outside Old Peoples Home | no |
| | | | | In Busy Shopping Centre | no |
| | | | | Outside Mobility or Blind Centre | no |
| | | | | Other | yes |
| | | | | total | 2 |
| | | | | PV ² = | 0.15 x1 |
| | | | | Adjusted PV ² = | 0.66 x1 |
| | | | | Is the assessment on a dual carriageway | no |

| Time | All Vehicles | HGV's | Pedestrians |
|---------------|--------------|-------|-------------|
| 7.00 - 8.00 | 875 | 29 | 13 |
| 8.00 - 9.00 | 1136 | 47 | 21 |
| 9.00 - 10.00 | 889 | 38 | 6 |
| 10.00 - 11.00 | 730 | 35 | 6 |
| 11.00 - 12.00 | 683 | 39 | 4 |
| 12.00 - 13.00 | 761 | 25 | 3 |
| 13.00 - 14.00 | 914 | 31 | 3 |
| 14.00 - 15.00 | 818 | 42 | 2 |
| 15.00 - 16.00 | 940 | 36 | 11 |
| 16.00 - 17.00 | 1184 | 32 | 10 |
| 17.00 - 18.00 | 1306 | 17 | 5 |
| 18.00 - 19.00 | 948 | 12 | 5 |
| total | 11184 | 383 | 89 |

Background

A request was made from a local Borough Councillor together with a 472 name petition received, that due to a historic collision problem involving pedestrians between Cliffe Road and Kestrel Drive on Bradfield Road that a formal signal controlled pedestrian crossing be introduced.

A subsequent pedestrian crossing assessment was carried out in October 2007 in line with local and national guidelines (LTN 1/95). This identified the need for a crossing close to Mablins Lane to serve the most prominent pedestrian desire line. Further discussions have given consideration to the most appropriate type of crossing for the location.

Pedestrian Refuge

The assessment carried out at the time indicated that some form of controlled crossing should be considered.

Assuming that direction of vehicle flows are comparable then on average there would be a vehicle every 8 seconds in each direction increasing to 1 every 6 seconds during the peak. The assessment indicated 36 pedestrians attempting to cross in the pm peak .

Where centre refuge islands are provided they can be an absolute minimum of 1200mm in width (LTN 2/95) but to cater for wheelchair users they should be at least 1500mm and preferably 2000mm (DfT Inclusive Mobility)

LTN 2/08 Cycle Infrastructure Design recommends that a minimum gap of 4 metres is provided at refuges unless additional features to significantly reduce motor vehicle speeds are incorporated. This minimum is recommended in order to reduce the instances of cyclists being “squeezed” at a refuge by overtaking vehicles. The assessment recorded 118 bicycles during the 12 hours. Although it is recognised that refuges have been installed at narrower widths, taking in to account the number of vehicles and cyclists using this route the recommended minimum should be provided in this instance.

The width of the installation would thus be 2 No carriageways at 4m plus a refuge at 2m i.e. 10m. The existing carriageway width is 6.9m so this would require a localised widening of 3.1m. Such a widening may be possible on one side only, i.e. utilising the wide verge at the junction with Mablins Lane. This would also have the effect of moving traffic nearer to the frontage properties and make the Council liable to Part 1 Claims under the Land compensation Act 1973.

All locations considered were affected by domestic drive accesses. The least affected is just to the west of Mablins Lane. However, the installation of a refuge at this location would severely restrict access to and from the adjacent filling station especially by large vehicles. A refuge would prevent petrol tankers from turning left out of the station forecourt.

Conclusion – A refuge would have an operational effect on the petrol filling station, severely restricting servicing arrangement and would be resisted by the proprietors. A carriageway widening of up to 3.1m would be required which could only be accommodated on the east bound side on the approach to Mabllins Lane junction, this may result in conflict with vehicles at the give way line as well as creating a sharp change in direction. The Council will also be liable to pay compensation.

Zebra Crossing

Zebra crossings should not be installed on roads with an 85 percentile speed of 35 mph. or above (LTN 1/95). Assessment indicates an 85th percentile of 35.6mph.

Where a crossing is thought necessary but crossing flows are relatively low and traffic flows are no more than moderate, then a Zebra crossing may be suitable (LTN 1/95) Vehicle delays are typically five seconds for a single able person crossing but can be much more where irregular streams of people cross over extended periods, in this case there area around 36 persons in the peak hour that could cross individually.

The capacity of a variable standard urban road with frontage access, pedestrian crossings and loading and unloading is generally in the range of 1500 to 1850 vehicles per hour (Highways agency Traffic Advisory Note 79/99). Bradfield Road has a recorded flow of 1306 during the pm peak and as such the route can be considered to have high traffic flows.

Conclusion – as the route is highly trafficked and the speed of vehicles higher than 35mph then a zebra crossing would be inappropriate for this location due to safety considerations.

Puffin Crossing

LTN 1/95 indicates that signal-controlled crossings such as Puffins are used where:

- vehicle speeds are high, and other options are thought unsuitable;
- there is normally a greater than average proportion of elderly or disabled pedestrians;
- vehicle flows are high and pedestrians have difficulty in asserting precedence;
- pedestrian flows are high and delays to vehicular traffic would otherwise be excessive.

This location meets several of these requirements in that speeds are high, other options considered unsuitable, 14% of pedestrians crossing are considered to be elderly or disabled and vehicle flows are high.

A puffin crossing has the ability to cancel any calls should the pedestrian cross prematurely or walk away. It can also be adjusted to increase the waiting time for pedestrians and thus limiting the number of pedestrian phases during peak times.

Other pedestrian facilities installed on the B5076 corridor at North Street and Remer Street are puffin crossings; refuges nor zebra crossings have been installed and as such a puffin crossing would provide uniformity for those using the route.

Conclusion – a puffin crossing would be appropriate in this location.

Toucan Crossing

The crossing does not form part of a cycle route. A Toucan would not be appropriate.

Recommendation

The most appropriate pedestrian crossing facility would be a Puffin Crossing located to the west of Mabllins Lane junction.